

AM101074 Non-Prov. Utility Seqs.ST25  
SEQUENCE LISTING

<110> Wyeth  
Leeying Wu, Wei Liu

<120> COMPOSITIONS, ORGANISMS AND METHODOLOGIES EMPLOYING A NOVEL HUMAN  
KINASE

<130> AM101074

<150> 60/417,155

<151> 2002-10-10

<160> 30

<170> PatentIn version 3.2

<210> 1

<211> 2493

<212> DNA

<213> Homo sapiens

<400> 1  
atgcttgggc caggggtccaa tcgcaggcgc cccacgcagg gggagcgagg cccaggggtcc 60  
cccggagagc ccatggagaa gtaccaggtt ttgtaccagc tgaatcctgg ggccttgggg 120  
gtgaacctgg tgggtggagga aatggaaacc aaagtcaagc atgtgataaa gcaggtggaa 180  
tgcatggatg accattacgc cagtcaggcc ctggaggagc tgatgccact gctgaagctg 240  
cggcacgccc acatctctgt gtaccaggag ctgttcacga cgtggaatgg ggagatctct 300  
tctctgtacc tctgcctggg gatggagttc aatgagctca gcttccagga ggtcattgag 360  
gataagagga aggcaaagaa aatcattgac tctgagtggg tgcagaatgt gctggggccag 420  
gtgctggagc cgctggaata cctgcacatc ttggacatca tccacaggaa tctcaaacc 480  
tccaacatca tcctcatcag cagtgaccac tgcaaaactgc aggacctgag ttccaatgtg 540  
ctaagtacag acaaagccaa atggaatatt cgtgcggagg aagaccctt tcgtaagtcc 600  
tggatggccc ctgaagccct caacttctcc ttcagccaga aatcagacat ctggtccctg 660  
ggctgcatca ttctggacat gaccagctgc tccttcacga atggcacaga agccatgcat 720  
ctgcggaagt ccctccgcca gagcccaggc agcctgaagg ccgctcctgaa gacaatggag 780  
gagaagcaga tcccggatgt ggaaaccttc aggaatcttc tgcccttgat gctccagatc 840  
gacccctcgg atcgaataac gataaaggac gtggtgcaca tcaccttctt gagaggctcc 900  
ttcaagtcct cgtgcgtctc tctgaccctg caccggcaga tgggtgcctgc gtccatcacc 960  
gacatgctgt tagaaggcaa cgtggccagc attttaggtg atgctgggga cacaaagggg 1020  
gagcgtgccc tgaagctcct gtccatggcc ttggcatcct attgtttagt tccagagggt 1080  
tcattattta tgcccctggc cttgctccac atgcacgacc agtggctcag ctgtgaccag 1140  
gacagagtcc ctgggaagag agactttgcc tccctgggga aactagggaa gctgttgggc 1200  
cccatcccaa aggggtctgcc gtggcccccg gagctggtgg aggtggtggt cacgaccatg 1260  
gagctacatg acagggtcct cgatgtccag ctgtgtgcct gctccctgct gctgcacctc 1320

AM101074 Non-Prov. Utility Seqs.ST25

```

ctgggccaaag gcctgccttt tgcctgctcc gtggccctgg acaagttcct gatgatcctg 1380
ccagttttcc cagctatgaa gcgaggagct ggacacgagg tcctctggag tcaccctcag 1440
ggaggatggg ttgtgtcctc tgaagagggc tgcgctggtg caccaccccg aagccaaggc 1500
tccttgcaac caagccatca cctccaccct gctgagtgtc cttcagagcc accccgagga 1560
ggagccactt cttgtcatgg tctacagcct gctagccatc accacaacc agggggccag 1620
tgggcttccg aagccgccag ccaggactgt gggaaggaga gggccataca gagcgctcac 1680
accttcaccc acaaatcgga gtcagagtca ctgtcagagg agctgcagaa cgctgggctg 1740
ctggagcaca tcctggagca cctcaacagc tccctcaaaa gcagggacgt ctgcgccagc 1800
ggcctggggc tgctctgggc cctcctgctg gacgacccca tcttggcact ccagcgcccc 1860
aggaaaaaga gagctccaaa ccacggaaag cccgggaaac ccaagaacc tgccagcacc 1920
caaagtatca ttgtgaacaa ggcccccttg gagaagggtcc cggacctcat cagccagggtg 1980
ttggccacct accctgcgga tggggaaatg gcagaagcca gctgcggagt cttctggctg 2040
ctgtccctgc tgggctgcat caaggagcag cagtttgaac aagtgggtggc gctgctcctg 2100
caaagcatcc ggctgtgccca ggacagagcc ctgctggtga acaatgccta ccggggactg 2160
gccagcctgg tgaagggtgc agagctggcg gccttcaagg tgggtggtgca ggaggagggc 2220
ggcagtggcc tcagcctcat caaggagacc taccagctcc acagggacga cccggagggtg 2280
gtggagaacg tgggcatgct gctggtccac ctggcttcct atgaggagat cctgccggag 2340
ctggtgtcca gtagtatgaa ggccctgctc caggagatca aggagcgctt cacctccagc 2400
ctggtgagtg acagcagcgc cttcagcaaa ccaggcctcc ctccagggtg aagccccag 2460
ctggggtgca ccacgtctgg gggactggaa tag 2493

```

<210> 2  
 <211> 830  
 <212> PRT  
 <213> Homo sapiens

<400> 2

Met Leu Gly Pro Gly Ser Asn Arg Arg Arg Pro Thr Gln Gly Glu Arg  
 1 5 10 15

Gly Pro Gly Ser Pro Gly Glu Pro Met Glu Lys Tyr Gln Val Leu Tyr  
 20 25 30

Gln Leu Asn Pro Gly Ala Leu Gly Val Asn Leu Val Val Glu Glu Met  
 35 40 45

Glu Thr Lys Val Lys His Val Ile Lys Gln Val Glu Cys Met Asp Asp  
 50 55 60

His Tyr Ala Ser Gln Ala Leu Glu Glu Leu Met Pro Leu Leu Lys Leu  
 65 70 75 80

AM101074 Non-Prov. Utility Seqs.ST25

Arg His Ala His Ile Ser Val Tyr Gln Glu Leu Phe Ile Thr Trp Asn  
85 90 95

Gly Glu Ile Ser Ser Leu Tyr Leu Cys Leu Val Met Glu Phe Asn Glu  
100 105 110

Leu Ser Phe Gln Glu Val Ile Glu Asp Lys Arg Lys Ala Lys Lys Ile  
115 120 125

Ile Asp Ser Glu Trp Met Gln Asn Val Leu Gly Gln Val Leu Asp Ala  
130 135 140

Leu Glu Tyr Leu His His Leu Asp Ile Ile His Arg Asn Leu Lys Pro  
145 150 155 160

Ser Asn Ile Ile Leu Ile Ser Ser Asp His Cys Lys Leu Gln Asp Leu  
165 170 175

Ser Ser Asn Val Leu Met Thr Asp Lys Ala Lys Trp Asn Ile Arg Ala  
180 185 190

Glu Glu Asp Pro Phe Arg Lys Ser Trp Met Ala Pro Glu Ala Leu Asn  
195 200 205

Phe Ser Phe Ser Gln Lys Ser Asp Ile Trp Ser Leu Gly Cys Ile Ile  
210 215 220

Leu Asp Met Thr Ser Cys Ser Phe Met Asp Gly Thr Glu Ala Met His  
225 230 235 240

Leu Arg Lys Ser Leu Arg Gln Ser Pro Gly Ser Leu Lys Ala Val Leu  
245 250 255

Lys Thr Met Glu Glu Lys Gln Ile Pro Asp Val Glu Thr Phe Arg Asn  
260 265 270

Leu Leu Pro Leu Met Leu Gln Ile Asp Pro Ser Asp Arg Ile Thr Ile  
275 280 285

Lys Asp Val Val His Ile Thr Phe Leu Arg Gly Ser Phe Lys Ser Ser  
290 295 300

Cys Val Ser Leu Thr Leu His Arg Gln Met Val Pro Ala Ser Ile Thr  
305 310 315 320

Asp Met Leu Leu Glu Gly Asn Val Ala Ser Ile Leu Gly Asp Ala Gly  
325 330 335

Asp Thr Lys Gly Glu Arg Ala Leu Lys Leu Leu Ser Met Ala Leu Ala  
340 345 350

AM101074 Non-Prov. Utility Seqs.ST25

Ser Tyr Cys Leu Val Pro Glu Gly Ser Leu Phe Met Pro Leu Ala Leu  
355 360 365

Leu His Met His Asp Gln Trp Leu Ser Cys Asp Gln Asp Arg Val Pro  
370 375 380

Gly Lys Arg Asp Phe Ala Ser Leu Gly Lys Leu Gly Lys Leu Leu Gly  
385 390 395 400

Pro Ile Pro Lys Gly Leu Pro Trp Pro Pro Glu Leu Val Glu Val Val  
405 410 415

Val Thr Thr Met Glu Leu His Asp Arg Val Leu Asp Val Gln Leu Cys  
420 425 430

Ala Cys Ser Leu Leu Leu His Leu Leu Gly Gln Gly Leu Pro Phe Ala  
435 440 445

Cys Ser Val Ala Leu Asp Lys Phe Leu Met Ile Leu Pro Val Phe Pro  
450 455 460

Ala Met Lys Arg Gly Ala Gly His Glu Val Leu Trp Ser His Pro Gln  
465 470 475 480

Gly Gly Trp Val Val Ser Ser Glu Glu Gly Cys Ala Gly Ala Pro Pro  
485 490 495

Gly Ser Gln Gly Ser Leu Gln Pro Ser His His Leu His Pro Ala Glu  
500 505 510

Cys Ser Ser Glu Pro Pro Arg Gly Gly Ala Thr Ser Cys His Gly Leu  
515 520 525

Gln Pro Ala Ser His His His Asn Pro Gly Ala Gln Trp Ala Ser Glu  
530 535 540

Ala Ala Ser Gln Asp Cys Gly Lys Glu Arg Ala Ile Gln Ser Ala His  
545 550 555 560

Thr Phe Thr His Lys Ser Glu Ser Glu Ser Leu Ser Glu Glu Leu Gln  
565 570 575

Asn Ala Gly Leu Leu Glu His Ile Leu Glu His Leu Asn Ser Ser Leu  
580 585 590

Lys Ser Arg Asp Val Cys Ala Ser Gly Leu Gly Leu Leu Trp Ala Leu  
595 600 605

Leu Leu Asp Asp Pro Ile Leu Ala Leu Gln Arg Pro Arg Lys Lys Arg

610

Ala Pro Asn His Gly Lys Pro Gly Lys Pro Lys Asn Pro Ala Ser Thr  
625 630 635 640

Gln Ser Ile Ile Val Asn Lys Ala Pro Leu Glu Lys Val Pro Asp Leu  
645 650 655

Ile Ser Gln Val Leu Ala Thr Tyr Pro Ala Asp Gly Glu Met Ala Glu  
660 665 670

Ala Ser Cys Gly Val Phe Trp Leu Leu Ser Leu Leu Gly Cys Ile Lys  
675 680 685

Glu Gln Gln Phe Glu Gln Val Val Ala Leu Leu Leu Gln Ser Ile Arg  
690 695 700

Leu Cys Gln Asp Arg Ala Leu Leu Val Asn Asn Ala Tyr Arg Gly Leu  
705 710 715 720

Ala Ser Leu Val Lys Val Ser Glu Leu Ala Ala Phe Lys Val Val Val  
725 730 735

Gln Glu Glu Gly Gly Ser Gly Leu Ser Leu Ile Lys Glu Thr Tyr Gln  
740 745 750

Leu His Arg Asp Asp Pro Glu Val Val Glu Asn Val Gly Met Leu Leu  
755 760 765

Val His Leu Ala Ser Tyr Glu Glu Ile Leu Pro Glu Leu Val Ser Ser  
770 775 780

Ser Met Lys Ala Leu Leu Gln Glu Ile Lys Glu Arg Phe Thr Ser Ser  
785 790 795 800

Leu Val Ser Asp Ser Ser Ala Phe Ser Lys Pro Gly Leu Pro Pro Gly  
805 810 815

Gly Ser Pro Gln Leu Gly Cys Thr Thr Ser Gly Gly Leu Glu  
820 825 830

<210> 3  
<211> 29836  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (6464)..(8402)  
<223> Can be any one of A, T, C and G

<400> 3

AM101074 Non-Prov. Utility Seqs.ST25

atgcttgggc caggggtccaa tcgcaggcgc cccacgcagg gggagcgagg cccaggggcc	60
cccggagagc ccatggagaa gtaccagggtg ccgagtgttc cctgcgggga ggcgggagct	120
ccgtggggta acggtcgcaa ccctggagct acggccggcg gttccgaccg agggcggcga	180
ggggcccgcg ccctggccag tgctggcctg cagctcctag gttgaacctg gggggcctcc	240
aacgggtgacc tcctgggtgc cctttgccac tcagtttccc cctttgtgaa ttgactaagg	300
attctccagc cctggctgag tatttgaggg cgtagggcag ctctctatc cttcgtgcct	360
ggggctgtg cgcttggtgc caccgaggca ggacccccg gaacatccc agtacataat	420
tgggagcccc cagtcacctt aaaacacccc tgcagcgtgg gtctgtgaaa atgtttgaga	480
cctaaaaaat tcacaaaaca caaaaggaaa gctgcaaaat aaaagtaa atgttaattaa	540
atgcttctat acatgatata tacactttat taaatgttag attcagcatt tgtgaaaaat	600
gcattcgctt ggaaacagtt tgcggggttag atttttgtca ctttggaaga attgtctttg	660
tgtgagagga ctatagggcg ttgccagagg tgaagcagat gagcttctgg tggccagata	720
atttttaaag taaagtgttt ttccagatta aaaaaaata gacgtttcag gaatatacct	780
gcttttgga aaaaaaatag acttgattcg agatacggct ccattttact gtttaatttg	840
ctgcctaagc ttgaacgctc tcacaccagc tctgcccctca gcccgtgtg gcttagaaca	900
gcagtccttg gccgggctcg gtggctcacg cctgtaatcc ccaacacttt gggaggccaa	960
ggcgggcgga tcacctgaga tcgggagttc aagaccagcc tgaccaacat ggagaaactg	1020
tctctactaa aaatacaaaa ttagccagggt gtggtggcgc atgcctgtaa tcacagctac	1080
tcgggaggct gaggttgag aatcgcttga acccaggagg cagagggtgt ggtgagccaa	1140
gatagcgcca ttggactcca gcctgggcaa caagagcaaa actctgtctc agaaagaaaa	1200
aaaaaaatag cagtcctcaa cctttttggc acaagggacc agttttgtgg aagacaattt	1260
ttccacagat ggaggcgga ggtggtttt gggatgattc aagcacatta cacttagtgt	1320
gcagttcatt tctattatta tggtgtaata cataatgaaa taattacaca actcaccata	1380
atgtagaatc agtgggagcc ctgagcttgt tttcttgcaa ctagaccatc ctctcgggat	1440
gatgggagac agtgacggat catcaggcat ttgtttctca taaggagcat gcaacctgga	1500
tcctcacat gcaactgtca caatagggtt cacactccca tgagaatcta atgctgctgc	1560
tgagctgaca ggaggtggag cttgggtggt aatgcgagcc atggggagcg gctgtaaata	1620
cagatgaagc tttgctccac tgctgtctgc tcacctctg ctgtgcagcc tggttcctaa	1680
caggccacgg actaggttg ggacccctg cttagaatat ccagtgtcat gagcaggctg	1740
ctcacaaggc tggattacag actcctaaga cttttatggg ctccgagagt ccctaggctc	1800
aggcttccat cctcatatct cctcctctgg gtccctgcct cctccccca atcctctgat	1860
gaatgtcagc ctccagcaat ccccgccca gcccctgcc ccatagcact tggctctctgc	1920
acagagttct ggcttggtgg ccatctctcc agatttggt caaatcacag gctctaagat	1980
cagaccccca gagttacccc aggcagtgct ctgctttcta gtgacatagc ctgaggcaag	2040

AM101074 Non-Prov. Utility Seqs.ST25

gacctagctc cttgtgcctc agttttcccc aatgtaaaca cagaggtagc aatggtgtca	2100
actgcaaagg gtggctgtga agtgcttggc accatgccag gcacacaatg gcttcctgat	2160
tgtaccagtc acaagattgg ttactttctt gttggaaacc agttgggagg tggatgctgg	2220
aagttgaggt cacagaggtc tatagagagt gaataagccc tttttctctg ggaggttctt	2280
gcacttgagt gcccagctgg tcctcattgc aggttggggg agggatacag ggtttagaa	2340
gagctccaga atcggtccca aataggtgag atcagagttc tgccattgaa aggcttcttg	2400
ccctccttgg gccatttctt ctattgcaag atggggtgga gccacttgct ctgccagcct	2460
gacaggggag ttagcagggc cagaaaagga gttggagctg ggcttttggg aagggaag	2520
ttgtgtgcat ttcctgaaaag cttctctctt ccttgctgat aggttttgta ccagctgaat	2580
cctggggcct tgggggtgaa cctgggtgtg gaggaatgg aaaccaaagt caagcatgtg	2640
ataaagcagg taagaggcca agcctgtgca tcccatgccg ggtggttctg tgactgtgat	2700
tttccccaat acaagctctt cccatgttgg agaagcttcc tgatgcggca gctggattcc	2760
tcgctgtga cacttgcgga gactaatctg gttgggtag atgtgggggt gcgtgaagct	2820
ctgtcacctt gatggggaag caatgctaatt tttactcca acaccaccac ctcccaccat	2880
ttacgcatca cgtgctgtat gccaggcact gactcactc atctcccgtc aacctgtaa	2940
agcagaaaca atgaccctgt ttatagccaa agacagttag gctcaatgca gcgccagact	3000
aggcaaggct acacaatttc caagaggatt tgaattcagg ccacctcact gggggacacc	3060
gtgctacca gtgctgggtc accagtttta ccaaaagggg gccaggcca gagaggatgg	3120
ggactggctc aaggtcacac agggctaagg tcacacacca ggccctgagc cttccacca	3180
cactcctcac cagggctagc agggcatggg gaggtgtagg cctgcaggaa gacagccctt	3240
tgtgtgtccg agacagggag gtccagatca acagaggagc tagggtgaga aagctgtgc	3300
aagagtccct ggcattgccct cctctctgtg gtggtggcag ggaccagca ggttcagggc	3360
tggccataca gcgggaggag ccttgtcagc agctgtact gggccaggcc tcagtccgta	3420
cagctccgca gtctcaccct gtatggctgg gcctggagtc cttgcccctg ccctgctccc	3480
ttgctggctg gctgtggggg tggccccctt gtctcacaag cactggggc agtgtggctg	3540
actgccctct gagcagttaa ggagcttttt ttttgtttg gagatggagt cttgctctgt	3600
cgccaaggct agagtgcagt ggtgtgatct cagctcactg caacctctgc ctctggggtt	3660
caagcaattt tcctgcctca gcctcccaag tagctgggac tacaggcaca cgctgccacg	3720
cccggctaatt ttttgtatt ttagtagaga cagggtttca ccgtgttgcc caggctggct	3780
tcgaactcct ggaactcctg agctcaggca gtccgcccgc ctccgctcc caaagtgtg	3840
ggattacagg catgagccac cgcgtccggc ctgaggagct tttaaaaatg tcagccatga	3900
ctaggcatgg tggctcatcc ctgtaatcgc agcatttttg gaggccgagg caggcagatc	3960
ccttgaggctc agaagtttga gagcagcctg gccaacatgg tgaaacccca tctctactaa	4020

AM101074 Non-Prov. Utility Seqs.ST25

aaatacaaaa attagctgag catggtggtg ggtgcctata gtcccagcta cttgggagct	4080
gacgcgggag aattgcttga acccgggcgg cggaggttgc agtgagtcga gattgcgcca	4140
ctgcactcca gcctgggtga cacagcgaga ctctgtctaa attaattaat taattaatta	4200
aattaaaaat aaaaatatca cccaattatt tctaaataaa aattggggaa agagagtgtg	4260
ggtaggagtt tatgggttct tccagtcttt tttcctaagc gtttgtaaac ttttttgat	4320
tcaggagaat ggtatcgta aagttgatag catccttttt atattgcaa catagtttca	4380
tgtcattccc acagcctcct cctctcttgg ctctggcaac tgtgtggcct cccgtcttgc	4440
ttgatgtgct gtaactaacc caagccatcc ctatcacatg ggctgagcat tgagcttggt	4500
ctcaatTTTT cacttttgtt aaacagctct gataaagatg cttatggcat tatggttttg	4560
tttgtttttt tgttttgttt tgttttgttt tgttttagcat ccatgatttc cttaggaaaa	4620
attcctagga gtgagatttc tgggtcatat gatgtaactt tttttttttt tttttttttt	4680
ttgagatgga gttttgtctt tgttgcccag gctggagtac agtggtgtga tctcagctca	4740
ctgtaacctc tgcctcccgg attcaagcga ttttcctgcc tcagccttcc tgagtggctg	4800
ggattacagg cacgtgccac cacatccagc taattttgta ttttttagtag acgggggttc	4860
tccatcaaca tggagaggat ggtcaggctg gtctcgaact cccgacctca gatgatccgc	4920
ctgcctcggc ctcccaaagt gctgggatta caggcgtgag ccacccacc cagccgcttt	4980
tttttttttt ttttgagacg gagtctcact cttgttgccc aggctggagt acaatggcgt	5040
gatctcggca cactgcaacc ccttctctcc aggttcaagt gattctcctg cctcagcctc	5100
cgaagtagct gggattacag gcatgtgcca ccacgcccgg ctaattttgt atttttagta	5160
gagacagggg ttctccatat tggtcaggct ggtctcgaac tcccaacctc aggtgatccg	5220
cctgcctcgg cctccctaag tgctgggatt tcaggcgtga gccactgtgc ccggccacaa	5280
tgtaacattt tcaagtcttt ccatgttttg gccaaactca cctcctcata tgccccctag	5340
gacaggagga aaggaagaca ggaaggctca ctcagtgtct ttgccctgga ttccacggga	5400
cagtgccact ggcattctcag gtctctccat agatctggga acaattcact aactttacat	5460
gatggtctgc attcaccaca ttataagagt acttcattca taagtctttt gagcaaaatt	5520
ctgggtgagg atctggtatt agagccagtg gtagtatata cctagggcct gtgccaccaa	5580
gcgtgctgca gactcaaagc tccgtgctgc ctttgccacc acccttccct ttccatgccc	5640
tccccacctc caccgggaga gggcacagga gagaagagca ctgtacattc catgcgtgga	5700
gacaaccttc cccatgtggg taaggaatga agtggtgaga ttgatgcttt cccaaccaga	5760
acaagatggt cctgttttaa gacggtctga aaatggatcc ttactgagt tcttgagcg	5820
tatattatgc tgtcctaaac ttatctttgc aaaaggagca aagatgttct cattgctcta	5880
agtattttta gatctctgcc ttaggaatat ctccatttg tgccatatgg tgggggcagg	5940
aatggtggga gcctgtcact cctgctaaat agtgatgatg gtggtgatga tggaggtggc	6000
aatgatggtg gtagtggtgg tgatggtggt ggcagtgatg atggtgatga tgatggtgat	6060



AM101074 Non-Prov. Utility Seqs.ST25

gataatggtg atggtggtga tgggtgatg atggtgatgg tgggtcatggt gatggtgtga	6120
tgatggtgat ggtgggtcatg gtgattatgg tcgtgggtgat gatgtgatga tgggtggtggt	6180
ggtgtgatgg tgatgatagt aatggtgatg gtgggtgatgg tgatgataat agtgggggatg	6240
gtgacagtgg tgttgatggt gtgatgggtgg taatgatgat ggtaatgatg gtgatgggtgg	6300
tgatgatggt aatgatgggt atgatatgta cgatgggtgac agtggcattg atgggtttgat	6360
ggtgggtgatg gtgtgatgat ggtgggtggtg tgatgggtgat ggtggtagtg atgggtgatga	6420
tgttggtgat ggtgggtgat atggggataa tagtgggtggt ggtnnnnnnnn nnnnnnnnnn	6480
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6540
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6600
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6660
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6720
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6780
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6840
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6900
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	6960
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7020
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7080
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7140
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7200
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7260
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7320
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7380
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7440
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7500
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7560
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7620
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7680
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7740
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7800
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7860
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7920
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7980
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8040

AM101074 Non-Prov. Utility Seqs.ST25

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8100
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8160
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8220
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8280
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8340
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	8400
nntcaatgat ggtaatgat gtgatgatat atgatgatga tggtaatgat ggtgatgata	8460
gtggtgatgg tgggtggtgat ggagtgatgg tggtaatggt agtggtggtg gtgtgatgat	8520
ggtgatgatg gcagtgatgg tgatgatggt gatggtgatg atggtgacag tgatggtggt	8580
gttggttggtg gttgtggtaa tgatggtgat ggttggtggtg gaggtggtgg ctgtgcagat	8640
gatggtaatg gtcgttggtg tgggtggtgat ggcggtgata acggagatga tttgctacat	8700
gtttattaag ctcatgctct tgtgcccttg cagggtggaat gcatggatga ccattacgcc	8760
agtcaggccc tggaggaggt aactctcagg gtagttttcc ctctggaaga gctcaatgga	8820
gcatacacag actgtgttct gtaccttctt gttgagtgcc tggatgaaga gaaggctgga	8880
gggagggata gagcatcagc accagttttg cctcagctgt gaagccagca gccccaggtc	8940
atgaaggagag tccatgcccc aaacactcac tgctaaatgc aggtgccgac aacttagaac	9000
atatgttccc agagaacata aaatttaaat attgggctgg gcacggtggc tcacatttgt	9060
aatcccacca ctttgggagg ccgaggcggg tggatcactt gaggtcagga gttcaagacc	9120
agcctagcca acatggggaa accctgtctc aacaaaaaat aaaaaaaat tagctgggca	9180
tgggtggtggg cacctgtaat cccagctact tcgagaggtt gaggcgggag aatcacttga	9240
acctgggagg cggagattgc aatgagccga gattgcacca ttgcattcca ccctgggtga	9300
cagagcaaaa ctttgtctca aaaataaata aatattggcc gggctccctag gttaatctac	9360
caataacttc tttaaatatt ttttcttcaa tataaaatta ttaattacag cagaaaattt	9420
taaaaataca gaattgggtt ttcttttggt tttacctttt ttttttttc tttaatagca	9480
atgggggtctc accattttgc ccaggctagt ctgaatttct gggctcaagc aatcgtccca	9540
cctcggcctc caaagtgtg ggggtacaggc atgtaccacc acaccatac cagaactgtt	9600
taacaaaaca aatataaatt acccttaatt ctaccattga gagctgcccc gcagtaacat	9660
actcgtttac aataatagcg ataacagctg cacttcggtt tgattggcaa agcctccgag	9720
tagcctttct ttgtgtttct tgaattttcc acgagcttga aggtgtcccc tcttatctca	9780
tggtcacttg tttgtcttct ggaattgtg gctctggagc ttggccagca aacattattg	9840
ggtgtatagt gtgaccgaag cacagtgggt ggcccaggct actcggtaac aaatgggaag	9900
aaagagcatg gggcctgccc agagccgcac gccgcgtgg cttttcacgt tgccgattcc	9960
catccacagc ccactaggta ggccacctgc tttcatgccc aaccttcac cccaagcagt	10020
tgtctgtctg gctccatgtc tctaaggcag ccctatctgc tcctgtttgg gcatgtttca	10080

AM101074 Non-Prov. Utility Seqs.ST25

aagcactttc cgccagggca ggggcaccgg gacctctccg tgtgcccacc tcccgggtgc 10140  
tgcaccacct cctccagcca gccctggctg tggctgatcc ccaccttctt ggcactgcct 10200  
gccacagctc actcaccccc catggtatcc ctgtgaggca gattccacta ggacccccat 10260  
tttcagatga ctatatgagg ccagtcacc cagcacagcc agctcatgct ggagacagga 10320  
cccacatcgg actgcctggc tcccaaccac cgtgcagctt ccctgagccc actccctggc 10380  
ccagctcaga gcccagggtt tgcatgtttg ttgggatgtg tgacagagaa gcccagactg 10440  
agaaaggcgt ggagaggcac tgacttctcc gtttcctctg ctctatcctg gcagctgatg 10500  
ccactgctga agctgcggca cgccacatc tctgtgtacc aggagctgtt catcacgtgg 10560  
aatggggagg tgggtcagag ctgacaccta cgggctcagc cgccacgcag tgggctgcag 10620  
gaccaagcag actgagccca gagcacgccc accccccact gtcagaatag ctcgtgtggc 10680  
aatggcagtg actgtaaacg tggccacccc tgacctaaac ctcactgggg ccaggtacca 10740  
tgctgggggc ttctcgtgca tagtctcata ggagccccaa aaacctcatc gtcaggagag 10800  
tttttttttt ttctggacaa agtctcgtc ttgtccccc ggctggagtg taatggtgtg 10860  
atcttggtc actgcaacct ctgcctcccg ggttcaagag attttcttgc ctcagcctcc 10920  
cgagtagcca ggattacagg cgctgcatc gatgcccggc taatttttgt atttttagta 10980  
gagacggggt ttcacatgt tggctgggct ggtgtgaac tcctgacctt aagtgatccg 11040  
ccgcctcgg cctcccaaag tgctgggatt agaggcgtga gccaccacgc ctgaccagga 11100  
ggggttctta acccatttga cagaagaaga aacagaggct aacagaaaca agttgctcca 11160  
ggttaccag ctagtacgtg gccaaagcag agggccaggc cagatgggccc tgactcccgg 11220  
gctctgcacg cagccaacga gcttgctctg gtgagcctgt gcctctgatg acagagtttt 11280  
tactttcatg gaaggagcta gttgacctc gtctccacag ccacccgaca ccggtgccgt 11340  
cctgggcctg tgcgccccct actcctgcag cccctgtgca gcttactgac cagcaccaca 11400  
tccgtcatca cgtgccagga gggctgcagg gcaggaagta ctgtccctgt gctcctgatg 11460  
gggcctaggg ctccggttca ggagctctcc aaggccacac agctagtaaa cagctgactg 11520  
gggacggaga ctgaggtcca gcagccgggt cctgtaggct ggatgacttc ttgtctttac 11580  
aaggagccag gagctttcca gtcacttctg atgggactga ggcagacagc gggaggctga 11640  
gcaggcaciaa ggggtgctgg aggtaaagag aggtgagaa gccttctgcc aggcgccagc 11700  
ctgcatgaga tgtccacact ggtgttccca cctggggcca acaatcccgg gtccgagcag 11760  
gaaaggcccc tcacacgctc cctctgctcc agcgggtctt ggggagggga cctcactgca 11820  
tgactccca aagattttct gagcaccccc taatgctctc aaggagggtg cagagaagcc 11880  
aaggagcat ttccctatgg gagggagcac agaattgggg gccctgacct ggtctgctgg 11940  
ggctctggcc agggcagggc cctcagagga aatgggtctg agctgagccc taaagggtgc 12000  
atagttatcc ctatgaaggg ggtgggtagt ggtccaagca gagggtcca tgtgtgcagt 12060

AM101074 Non-Prov. Utility Seqs.ST25

ggccagggga caagtgcagc ttttgggaaa gtccaagtag cttggtgtgg atggagtgtg	12120
gagtggaggt ggagcctggg aatggggaga ggagagagag gaagctgaag gtggggcagg	12180
aggggcttgt agccccctcc agtgggcagt gctccacgg ccaactgcaaa tggcagctga	12240
gcgcagggag gccctggagc aggtgagcct gcagaagcac cggggcctgg gcgtcctttg	12300
gctaagggcc tcctgtccca gcagatctct tctctgtacc tctgcctggg gatggagtgc	12360
aatgagctca gcttccagga ggtcattgag gataagagga aggcaaagaa aatcattgac	12420
tctgaggtga ggtccttttg ggcaccaggc ctgggggcca cctagacctg tgacacaggc	12480
cctgcggtgc agggcaaagt aacagcggga gggcaggcac catggagtcc agccttgttt	12540
ttttcttaaa tgtgtgcctc gaggcattgc actctaggtg atgtgtgcag atcttaagt	12600
cacagtttga tgcactcaca caacttccac ccagatcaag acagaaggcg ttcctaacac	12660
tagaagggtc ccagtcggtg accatgattc cagattgttc tgccggtccc tgaagttcct	12720
gtaaattggac tcgtccggca tgctgccact cctgtctggt ctccttccct cagcctgctg	12780
ttgtgagccc cgcggtgctg ctgcatgcac cagcaaataca tgtgttcatt gcttgctgcc	12840
actctgctgc ctgattgctc tgcaggctgt ttacctagtc tcatttgggc tgcttccagt	12900
ttggggctat tgtgaataag gctgctatga gcattgctgg aagacactca cttttctggg	12960
atgaatacct aggagtggaa ttattgggtc gtagagtaca tgtgtgtagc ttcagtggat	13020
gctccaaaca gatttccgac ttggtttggg tggcccatg tttactctca caagttgtga	13080
gcattcccga tccacatgga ggccagcact tcattgtgtc agtcttggtg ttgttgtgtg	13140
tgttgagatg gagtctcact ctgtcgccca ggctggagtg cagtggcacg accttggtc	13200
actgcaacct tcgcctccct gttcaagcga ttctcctgcc tcagcctccc aagtagctgg	13260
gactacaggt gcccaccacc acaccacta atttttgtat tattaataga gacaagggtt	13320
tgctatgttg ccaggtctg tctcgaactc ctgacctcaa gtgatccacc cgcctcggcc	13380
ttccagagtg ctgggattac agatgtgagc cgccgcgct agccagttca ctttcttaat	13440
gatgtctttt gatgatggaa agtcctaact gtaatggagt tcgctttccc aatgctgact	13500
cttatgggta gtgccttttg agtttaagaa gcatttcctg ctccaagatc atgaagatac	13560
tctcctctgt cttatggaag cttgggttatt tttgccttca catttagatc tttcatctac	13620
cccagatgaa tgctacctgc ttttaccctg agaactgtgt ttgggggggac catgtacccc	13680
tgaggggctc ttcggggcac acagctcttc tcttaccatg ggcctcagag gcaggccccg	13740
agtgagtttc agactttgtg agtgaagccc ttcaaaacac gaaatattcc cagaaacca	13800
gtaagtgcag cagacctact ctaactgggg gcagtgggag gacgcccaca tcctgcccc	13860
tcagccccctc tctgacaccc cagggtggcc ctgaatccag gggccctagg agcccagctt	13920
tagaatcacc gcgctgggta ctcgatggag cttgtctctg atgcagaaca ctctagcat	13980
tctctctcag ggctcttttc atttgaatga cctagaggat tgagctcatg taggcactga	14040
aggcttccac ctctcccata cccgcaaggc cgatctgcct tcagctccca gcaagtgtgg	14100

AM101074 Non-Prov. Utility Seqs.ST25

ggcagcgcgg gccacagagt aggggtgcagg gatggggccc ctgcagcacc caggggtctct 14160  
 ggtatggaga cagcagtgtg gagtctggaa actcagagtc cttctggctg ccgccgcggc 14220  
 ttaccatct ggagagccac cacgctgaag cctcctccac cctgagcgct tggctggctt 14280  
 caggcctgtc tcaagatgca aggagaggat acaccacat cctgctggct gctctgagt 14340  
 tcacccccct gaaagcagca cagggtgccc ctcccatcct ggcacccccct acttctcccc 14400  
 cagtggatgc agaattgtgt gggccagggt ctggacgcgc tggaatacct gcaccatttg 14460  
 gacatcatcc acaggtaagt ggggccccctg acctctgcgg actggctggc tgcttcggga 14520  
 gaaaaggcac tgaggccact cgggtgccag tgcccgtggg caggatctgg ggagaaagg 14580  
 gcaccgggac agtgacagca ggataggatg ggaccttaca gagctcctcc cgggcttgaa 14640  
 agaggctctt ccaagtgtgc tcaagccatg tgcacacgca cagctgcatg ggggtgtgcgc 14700  
 tagccaggcg ggctgctcta gagttcgtgg aaaggaagga ggcaaaagcc ctgccaagaa 14760  
 gagagaccgg gttgcctgcc gtggggccag tgtgggctga gtgggcccctg ctgagccttt 14820  
 gacccccagc ggcacaactt tcaggctgga gaatccatgg tctgaagggg ctgggagatg 14880  
 gctccaattc tgaacaccaa tatcttattt aaagaggaag agggaaacta tgcagctggg 14940  
 cgtggtggtg cacgcctgtg gtcctagcaa catggaggct gagatgggag gattgcttga 15000  
 agccaggagc ttgaggctgc agtgagctat gatcgtgcca ctgcacttca gcctgggcaa 15060  
 ccctgactta aaacacacac acacacacac acacacacac acacacacac acacacacca 15120  
 cgcagaccat acgtacaaag ggaatgtcga cattccacat ccagtgttca tgtcactaga 15180  
 cgtcgcacaa tggccaaaaa tcaatccccca ggcaaacgtg tagctgagat atctaaggag 15240  
 gtgaatgtgt caattaaggg gcctcttcgg agtgctgggt gtgttcctac ttgtggttga 15300  
 ggatttttcc ccgatttaa aataattgag tatatttctg tacataggaa acaactgctt 15360  
 aaaaagtagg ctgagatggg gcattttgtg gaggagagga ggatgtgggc tgctgctgca 15420  
 gaaccagggt gggcaggag cagagagtca ggctcagcac acacactggt cccacctggg 15480  
 gttgtgggtg gtggctgccc aggtggcccc ttggcatcca gaggcaaacc cacctcttgg 15540  
 tttcaggaat ctcaaaccct ccaacatcat cctcatcagc agtgaccact gcaaactgca 15600  
 ggacctgagt tccaatgtgc taatgacaga caaagccaaa tggaatattc gtgcggagga 15660  
 aggtggcagg ggctccccca ggttgtggga gagggggttg gcgcctagaa tccaggcggc 15720  
 gttggccact ctgggtgctg gagtgaggca acatcaaaca gctgtttgct cagaagggtcc 15780  
 ccacaaagcc ctggccttgt gtaaactcca aagagacctc ctttggggtg caactgagca 15840  
 ggcgtgccac caccagggca gaggcagggc cccacagaca cccaacattt gagagaaaca 15900  
 aagtcgtggt tgtttgtggt accccagaaa atgttgcttc tcatggaggg aaaagaaagt 15960  
 gtcagaagga aggatatgaa aatgcccagg acggaggagg gtgggggggg tcagcccccc 16020  
 gcccgccag ccgccccgtc cgggaggag gtggggggct cagccccccc gccagacag 16080

AM101074 Non-Prov. Utility Seqs.ST25

ccgccctgtc cgggagggag gtgggggggt cagccccccg cccggccagc cgccccgtca 16140  
 gggagggagg tgaggggagc ctctgcccgg cgcgccctac tgggaagtga ggagccccctc 16200  
 tgcccggccg ccaccccgtc tgggaggtgt gcccagcagc tcattgagaa cgggccatga 16260  
 tggcaatggc ggttttgtgg aatagaaaag ggggaaaggt ggggaaaaga ttgagaaatc 16320  
 ggatggttgc tgtgtctgtg tagaaagaag tagacatggg agacttttca tttgtttctg 16380  
 tactaagaaa aattcttctg ccttgggatc ctgttgatct atgaccttac ccccaaccct 16440  
 gtgtctctg aaacatgtgc tgtgtccact cagggttaaa tggattaggg cgggtgaaga 16500  
 tgtgctttgt ttaacagatg cttgaaggca gcatgctcgt taagagtcac caccactccc 16560  
 taatctcaag taccagggga cacaaacact ctgcctagga aaaccagaga cttttgttca 16620  
 cttgtttatc tgctgacctt ccctctacta ttgtcctatg accctgccaa atccccctct 16680  
 gcgagaaaca cccaagaatg atcaattaaa aaaaaaaaaa agaaagaaaa tgcccaggac 16740  
 ggaggggtctg tgggtgccag gcaactggctg cgtgtacatc actgagtcct acaacaaccc 16800  
 aggagatgaa ggggtgggtg gcaaggggag acgagttctc gttcctttga aaagatggcc 16860  
 agagaaaggg ggctggagag atcaaccaca gaggaggagt ccagagtccc aggatggcag 16920  
 ttgctggttg cactctgtcc tttttttttt tttttttttt gaggcggagt ctcgctctgt 16980  
 cgcccaggct ggaatgcagt agcgcaatct cggctcactg caagctccgc ctaccgggtt 17040  
 cacgccattc tcctgcctca gcctcccag tagctgggac tacaggcgcc tgccactggg 17100  
 cccagctaat tttttgtatt ttttttagta gagaccgggt ttcaccatgg tctcgatctc 17160  
 ctgacctcat gatctgcca ccttggcctc ccaaagtgtc gggattacag gcgtgaacca 17220  
 ccgcacccgg ccacactcag tccttggtag acagaagatg aatgagtaga tgggtgggtg 17280  
 tgtggtttgg tgggtggtag gatggatagg tgggtgggtg agtggatgga tgatgggtgg 17340  
 gtgagtggat ggatggatag gtgggtggat agatggatga atagggtggg ggggtgggtga 17400  
 gtggatggat ggatggatga gtggatggat gaatggatgg atggatgagt ggatggatgg 17460  
 atggatgggt ggatggatgg atggatggat ggatggatgg atggatggat ggatagggtg 17520  
 gtgggtgagt ggatgggtgg gtgggtgagt ggatgggtga gtaggtgagt ggatgagtgg 17580  
 atggatggat gagtggatgg atggatggat ggatggatgg agatggatgc atgcatgcat 17640  
 gggtggccgg atggatgaat gggagggtag gtaagtggat ggggtgggcgg gtggatggat 17700  
 aggtgggtgg gtcagtggat ggatagatgg gtgggtgagt ggatggatag gtgggtgggt 17760  
 ggggtgggtca gtggatatat ggatggatag atgggtaggt gagtagatgg atggatgggt 17820  
 gtgtgggttag agggatgggt gtgtgggtgg atgggtgagt gcatgggttg tggatggatg 17880  
 gttgggtggg tagatggatg ggtgggtggg tgcattgtga tggatgtgtg ggtgggtagg 17940  
 tgtatggatg aatggatgca tgggtgagtg tgtgggtaga tgggtgggtg tgtggatgga 18000  
 tgggtgggtg agtgagtga tgggtgagtg agtgaatgag tgtgtagggt ggtgagtgga 18060  
 tgggtgggtg ggtggatgga tggatggatg gatgggtgtg gcgtggatgg atgggtggac 18120

AM101074 Non-Prov. Utility Seqs.ST25

agacgggcag atggttggtt ctattggagg ttagatggc atgcgtcctt ggagtccagc 18180  
 cctttactgt tgggctgggg aatggaggtc cagagaagga ggggctgcct gaagccaacc 18240  
 agggactgat ggactcagag gagtctgctc ttttgctcc ctgtctgggg ttccagttga 18300  
 gaaagtaggg cagagcaact gtaactttgc ccccaaggtc ctgacattta gaaggggcaa 18360  
 gaagtttaga ggggtgcaca gtttcttggc acgtgcctct tccaactcct tctacagcca 18420  
 tccagggcac acagacacac cacctatatg ggccagcctg gtgggcaccc accaagatgg 18480  
 acagcttcag tggctccaga tcaacacaaa gctcccgtg attggggcct cttcctcccc 18540  
 acagttaata ttctccacct cttctgagaa gaggacctgc agggcttgtg tttcaagctg 18600  
 cttgcggggg gccaccaaag gggatacagt gctgggcagg gtgactctgt caagcccctg 18660  
 cccccagga gcaaaggact cagggatccc acctgtctt taccaacaga cccctttcgt 18720  
 aagtcctgga tggccctga agccctcaac ttctcctca gccagaaatc agacatctgg 18780  
 tccctgggct gcatcattct ggacatgacc agctgctcct tcatggatgt gagccgccct 18840  
 cccctcccca caccacat gctgttcccc acgcgccag gcctggggaa aaggcttggc 18900  
 ctcaccctgc ctccctctg catcccttcc cctggctctc tgcaggctgc acagagccct 18960  
 cttctccacc tgcgaggggc ctgccctcct cagaaccctc cagcttgacg cacctgctgg 19020  
 gctctagcag gataatgaca gcagtggtaa tattcagacc atcccacgcg accctcgag 19080  
 cagccctcca ggtggtgtca ctgactcttg atggagaaaa gccaagttca ggtgcccttg 19140  
 tgagcatgaa ggctgcacgg agttgcaagc aacgggaacc cagtgtgggc ctgaacacac 19200  
 ctggctgtct catgcacaag cccagggctg gtgtggaggt gccttctctc ctctgcaca 19260  
 tccttagcat gcagctctt ctctcatccc tgctggggcc cctgcacat ggccacagcc 19320  
 tgtgggcagg aaggagggga ggcagagggc cccactggcc ccgcgagcac tccaaggta 19380  
 ctctggctgc agggaggcag ggaagtccag cctgtcgtt cctatcctct atatgcagaa 19440  
 gagaaaagtg gggaaggcct gccatgcca aaacaaggaa gctccccttc tccgcagcac 19500  
 cacctgcagg caccgaggtc cccagaaagg acagacacct ggctggaccc aggttcccca 19560  
 tggctccca gacccccaga ctccacctct gagaagcacc ttgccactcc cttcctttga 19620  
 aagactccca gggaaatgag agccttccca cttcggaggc tgtgtgacat cctggaaatt 19680  
 agcctgagct ccagccccag cccaggcagt gtgaccctgg gcatgctcac actctgtgaa 19740  
 atgggcatgc tgtcttactg gctgggtcta gatcaggggg ctttcttggc aggactccac 19800  
 cccgggagac aaccgctgg cttctctgaa actccatttc ttcttatgga agagcttggg 19860  
 gcccctgggg tctctgggca ttctttaga cgggtggccac acctggctct ccctggtctc 19920  
 ctcttgatt tcttggtccc tggctgtccc ctgcccagtc tgggacctag tttcattta 19980  
 ctttaaggaa tacacagagc tgtcctctct ccgtgcaggg cacagaagcc atgcatctgc 20040  
 ggaagtcctt ccgccagagc ccaggcagcc tgaaggccgt cctgaagaca atggaggaga 20100

AM101074 Non-Prov. Utility Seqs.ST25

```

agcagatccc ggatgtggaa accttcagga atcttctgcc cttgatgctc cagatcgacc 20160
cctcggatcg aataacgata aagtgaagctc agggctcgggg tttatttttaa cctgtggatt 20220
tatctttcaa catctctcca ccctaataca agcacagcta gttggctttg taacgcctca 20280
aagaactcca tcacagatgc cctgattatc cctgcacagc tgggctttgc ccagttctgg 20340
ctctcccaaa ccgtgctgcg gcgagtaatc ccgaatgtac ggtggagtga gcagactgac 20400
ccccaggagg cacaggaggc gtagcccca ggaccacga cacttttagg gttccagaaa 20460
aaagttttca ttctacataa aaaaaaaaaat tcctaaagac aatggtcacc tttaaatttt 20520
tcattctaac ttactttaaa atcagaagac aaaagtaa atataacact ggccggggcg 20580
gtggctcatg cctataatcc cagcactttg gggggctgag gcgggtagat cacttgagct 20640
caggagttct agtctagcct gggtaacatg gcgaaacccc tgtctctacg aaaaatacaa 20700
aaaattagct ggggtgtagt gtgcatgcct gtgttcccag ctactgggga ggctgaggca 20760
ggaggatcgc tcgagcccgg gaggcagagg ttgttgacgt gagctgagat ctgcactg 20820
cacttcagcc tgggtgacag agtgagaccc tgtctcaaaa aaaaaacaaa aacatataac 20880
aaagaatcca ggccggacac ggtggttcac acctgtaatc ccagcagttt gggaggctga 20940
ggtgggtgga tcacttgaag tcaggtgttc gagaccagcc tggccaacag agcgaaaccc 21000
cgtctctact aaaaatagaa aaaaaattag ctgggcatgg tggggtgctg ctgtagtccc 21060
agctactcag gaggtgaga cagaagaaat gctggaaccc gggaggtgga ggttgacgtg 21120
agccgagatt gtgccactgc actccagcct aggtgacaag agtgaaactc catctaaaaa 21180
aaaacccaaa caaaacaaa caaaaaaccc aacatatagc aaggaatcca gcctgggtca 21240
tattcatctt tataccaacg cagttgtaaa atctgggttt tcatgtttct atggaggcag 21300
gggacaagag caaaagtgcc agggccccgg actgtcccc agctctgtga gctgaggccc 21360
tgctccatg gagtacgtcc ctgggtgtgg aattgctggg gtgcttgccg gacacactgg 21420
ggacactatg agagaccctg ccaaatgaat cccaaaacag ggagttcagt gtccagtgtc 21480
cgcaccaatg ggcagcccgg agccagaggc agagggagag cccacgggg aggtggcagg 21540
gggcgctgct gggttactca gccctctctg ctctctgct agggacgtgg tgcacatcac 21600
cttcttgaga ggctccttca agtcctctg cgtctctctg acctgcacc ggcagatggt 21660
gcctgcgtcc atcaccgaca tgctgttaga aggcaacgtg gccagcattt taggtgatgc 21720
tggggacaca aaggggggagc gtgccctgaa gtcctgtcc atggccttg catcctattg 21780
tttagttcca gagggttcat tatttatgcc cctggccttg ctccacatgc acgaccagtg 21840
ggtaggaaca gtttccctcc atccatccct acacactgcc caggacaccg ctctgtcaa 21900
atatcctcca tagctcccaa ctacctataa cacaaagttc ctctccatag cctggcccc 21960
acctgttttc cctccgctcc tgctacaaa atcctctatg tagctcaatg gcctagtcac 22020
tgccacgcc tcccacaacc ctctgctttt gcttccacag cctgggtggc acacagtgg 22080
cccaggacat cttcctcaca cagcaccact tccttctg gcgttctat gtgcccagga 22140

```



AM101074 Non-Prov. Utility Seqs.ST25

tgagcagaag tgcgctccat catctgtgtg ctccaagaca gagacttggg ttctattaag 22200  
 gaaaagtgtc ttggtctcag tggcctcatc tgtaaagtgg ggatggtaac agcccctccc 22260  
 tctcatcctg aacctgtgga tctgaggagg ggatgcacac acagcagcca gccagtggtg 22320  
 gtgccgagaa acagagcccc gaggccctgg tcctcagaaa ggtcccctccc ctgccttcct 22380  
 gtccctgcag aggtcatgca gaaattctct ggctggcccc aagtccagct cagggccatg 22440  
 aagaggcttc tgaaaatgcc tgcagatcag ctaggtaggc cccaccctgc acccctttcc 22500  
 cagctgctcc ctagggggca gaagctatgg tccggcctgt ggggagctga ggctggccct 22560  
 cccccgggc tctcctcgcc agtgctttat tgcagcgtgg aggcgtgcat gtgtccccag 22620  
 aagagtcccg tgtctctgct atctgcctgg ggaagacagc agagaagggg aatgggtggt 22680  
 gtggcagccc tcacatgatt ttaatggagc cacagacatc ccatcttccc cactgtccct 22740  
 atgaggggta tctgagttgt ttctcagttt ccactattat gaatgatact agaacggaca 22800  
 ccctgggtgtg tatgtatctg tgcacttggt tccgtagcac agattcctag atgttcaaga 22860  
 gtgtgaatac ttttaactttt cacagataca acttgcccac ctattaagaa tgcattggcct 22920  
 ggcgcagtag ctcacgcctg taatcctagc accttgagaa gccaaggcgg gaggactgct 22980  
 tgagcccagg gatttgagac cagcctgggc aacaaagggg gagcccattt ctacaaaaaa 23040  
 taaaaaaatt agccaggtgt ggtgacacat gtctgttatc ctagtactc aggaggctga 23100  
 ggcaggagga ttgcttgagc ccagggaatt gaggctatag tgagctacgc ttgcaccacc 23160  
 gcactccagc ctagaagacc ctgtctcaga aaacaaaacc aaacccaaaa agattgttac 23220  
 tgctcattca tggagagtgt tgggaaaagc agttttttt tttgtttttg tttgtttgtt 23280  
 tgtttgtttt tgagacaggg tctcgtctg tccccaggc tggagtgcag tgggtgcgatc 23340  
 ttggctcact gcaacctccg cctcctgggt tcaagtgtt ctctgcttc agcctcccaa 23400  
 gtagctggga ctacaggtgt gtgccaccac acccagctaa ttttcgtat ttttattaga 23460  
 gaggggggtt caccatgttg gccaggctgg tctcaaagc ctgatctcaa gtgatctgcc 23520  
 tgtcttggtt ttccaaagtg ttgggattac aggcgtgaga caccgtgctc ggccaatttt 23580  
 taaaacattt gtgccaaaac atgctttcat aaaatctttc cattcaacct ttttcacctg 23640  
 cctgaacatt accttcacat atccatccat ccacccatcc acccatccat ccgtctgtct 23700  
 atccatcaga cctggattag gaatccactg aggtttgttg cagtggctcg ggcctcagag 23760  
 gtgacaaggc ccagccctgg cctttgagta ggtagcagag gcctcatatg ggcctaattt 23820  
 accattccct cctcccttc ctctcttcg accccttttg tagctcagct gtgaccagga 23880  
 cagagtccct ggggaagagag actttgcctc cctggggaaa ctagggaagc tgttggggcc 23940  
 catcccaaag ggtaggtctt tcccaccacc cggagccaca cctccctcca cgccttgctt 24000  
 agaaatgggc ttgcagccca gcgcagtggc tcatgcctgt aatcccagca ctttgggagg 24060  
 ggctgagggtg ggcagatcac ttgagatcag gagtcaaga ccagcctggc cagacatggt 24120

AM101074 Non-Prov. Utility Seqs.ST25

gaaaccctgt ctctactaaa aatacaaaaa ttagccagac gtggtggcgc atgcctgtaa	24180
tctcagctac gcaggaggct gaggcaggag aatcgcttga acccaggagg cggagggtgc	24240
agtgaagtga gatgatgcca ctgcacaacg gcctaggcga cagagtgaga ctctgtttca	24300
aaaaaaaaa aaaagagggg ggggtcttgc ttcgctccac actccagggtg ccaggacttc	24360
atccttggtg ctctcatgag cctagagtgg agggatggct gcctggccac tgccccctac	24420
ccagtcccca gccacaaca gtttctggca cagtggcagg gtggatggag cccaccacc	24480
catgtccacc ctgaggcag ttgcagccaa gggctctgga atagactggc taggttcaaa	24540
ctgctgaaga gcagggtgctt tcctcctgct gaccccggt tcctcatctg catatggagg	24600
gcagccttgg gaggggccac ttcacagggc tgtgggcagc acagagcagg acaccggtg	24660
cagacatggc atgcaactca tggacctagc gctaactctc attgtccttc ccccttctat	24720
tcaccacct agggccctgc aggtcctac cagcctctgg gggccctggt cgggtctata	24780
tgccccgat ctggcccaaa atgagtctcc cctgtgccgc ccgcccctgcc aggtctgccc	24840
tggccccgg agctgggtgga ggtgggtggc acgaccatgg agctacatga cagggtcctc	24900
gatgtccagc tgtgtgcctg ctccctgctg ctgcacctcc tgggccaagg tgggtgccaa	24960
accaggccag atggggctcg ggaggctgtg cgctgcttcc tgcagctgtg cctcctgggc	25020
caagggtggc accgggcccgg gtgggttagg ggaagccatg ccctgctccc tgctgctgca	25080
ccttctaggc catcttctag gccagggtgg atgccagggc caggccagga gacactcctg	25140
gtggcctagc tctgccccca ccacctggtt ggcatctaac cactggagag tccatgccat	25200
cctgtgcccc tcagaccccc tcctggatgg cagagagggc acaggccagg agcttggaga	25260
cgcggtatccc acccaggcct gccttttgcc tgctccgtgg ccctggacaa gttcctgatg	25320
atcctgccag ttttcccagc tatgaagcga ggagctggac acgaggctcct ctggagtgac	25380
cctcaggag gatgggtgt gtcctctgaa gagggctggg agggggcag tgctgagttc	25440
atttactgt cctgatggaa gaggttggag ctgagagatt gagcctccta tgagagacat	25500
gggttgtaa aagagttgaa ttagctttga tgatttttt tgaaacaaaa agtatttagt	25560
tacttttttt ttttttttg agatggagtt ttgctcgta cccaggcgag tgcagtggcg	25620
cactctcggc tcaatgcaac ctccacctcc caggttcaag cgattctcct gcctcagcct	25680
cctgaatagc tgggactaca ggcaccacc accacgcctg gctaattttt gtatttttag	25740
tagagacggg tttcaccatg ttagtcaggc tggctctgaa ctccctgacat cgtgatccac	25800
ccgctcagc ctcccaaagt gctgggatta taggcatgag ccaccgcgcg cgccacctt	25860
tctagtttca ctgttggaag tttggagttc catgcaatgt tgaaattgtg ttcagtgtg	25920
cctgactggc tcccaggac caggatgcgt ggccctggccg ggcagggtc ccttccggtc	25980
cttcaactca ttaggccaca gggattcatg gaggcctgct ctgggtcaga acaaggcaga	26040
cctcggtttc cttcatgcaa agtggagatg ctatccccc gcctgtgagc cttgtgtgtc	26100
tggcccatg cctgagctgt ggggctaacc ccaggcgtct tcctctggct tgagcagcgc	26160

AM101074 Non-Prov. Utility Seqs.ST25

tgggtgcacca cccggaagcc aaggctccct gcaaccaagc catcacctcc accctgctga 26220  
 gtgctcttca gagccacccc gaggaggagc cacttcttgt catggtctac agcctgctag 26280  
 ccatcaccac aaccaggggt gtgtctgcca gccacctcct gcccaccca cgctccagga 26340  
 cagcccttcc caggggtcctt ggaaggggtg gtttggggta taggtgggtt ggacaggaca 26400  
 gtgtggggcc tcctcctgag atacatggtg gcatttggcc gtcttcattt ggccaccca 26460  
 aatgctggtc gcaccccttt ccatcttgat gacaagcttc cactcttgaa gtcactgggt 26520  
 cctctacag acatgctagg cgcagctgtg ggcttcacac caatgacatc tctttccac 26580  
 acttcctgcc cttctggga ggctggggct caaatgccct gtgtgtctcc attccatagg 26640  
 gccagtggg cttccgaagc cgccagccag gactgtggga aggagagggc catacagagc 26700  
 gctcacacct tcaccacaa atcggggtgg cactgttctc cccaacagga agctgggcct 26760  
 cgagagagcc taaggacagt tgccaggagt ccatgcagca ggggttcagg ctgggggtctg 26820  
 ggccccagca cctcttttac tgcacagact ggataactga tgatacatgg ctgatctcac 26880  
 tttggggagt gaaaggaggc actaggaata gatgtcaact ggaaccctca ggcaaatgg 26940  
 atgtcagttc atcctaccgg gataggggcc cgtcatggtt ccatcctgga aggcacaggc 27000  
 tggctctgtg agcccaggag gcagggtcag gccccctgga tgggaagcta cagaggtcag 27060  
 acccagcctg gtagtgggat ggcagctatt gggactgggt gccacgaga tggacagact 27120  
 cctctggggc cagtcccaca tcctcctgtt cagggtcca ttgagtgcac acgacttggc 27180  
 ccagagcagg cacctaggat tgcaggtaa atgggactgc agtgcccaag gacaacagag 27240  
 gcaggaaggc ttctggagg gaggggccct ggggccctca ttctggctca cccacagagt 27300  
 cagagtcact gtcagaggag ctgcagaacg ctgggctgct ggagcacatc ctggagcacc 27360  
 tcaacagctc cctcaaaagc agggacgtct gcgccagcg cctgggcctg ctctgggcc 27420  
 tcctgtgga cggtagggg cctcctcct gctgtccac cggggctggc agccctcccc 27480  
 cagccccctc ctaactgccc ctgagagcct tcgaggacct ccatgtcctg tccctaaaac 27540  
 acaacagcca tagtccggga aaggctcttc tgagagcttc caactccaac agaagaaaat 27600  
 caaggagcag agagagaaaa ggcaggggag aaaggccttc tggcagaggc cgggtttcag 27660  
 gacttcttgc ccagtgggca gaccctcag ttttaagtgc ctctgcca gggaaatgtc 27720  
 ctgggatttt ccgggcagtc ctggttccag agggcagcg tgggtgctgga tgccctgttt 27780  
 gttttgattt ttgattcaca gtagggggcc ccctggcctg tgctgcttcc tctcctctag 27840  
 acccatctt ggcactccag cgccccagga aaaagagagc tccaaaccac ggaaagccc 27900  
 ggaaaccaa gaacctgcc agcacccaa gtgtgggatt ctccaagcct ctctgggct 27960  
 aaccctgca cccgtctctg aggacagttg accttccca cccatttct gctgttgtcg 28020  
 ttagctggag gaaggcagca gatgggggat gggaaggccc cctgcacac acccaaggcc 28080  
 tgggtgtccc ctccatccc tgcctcgtt ccaggatatca ttgtgaacaa gggcccttg 28140

AM101074 Non-Prov. Utility Seqs.ST25

```

gagaaggtcc cggacctcat cagccagggtg ttggccacct accctgcgga tggggaaatg 28200
gcggaagcca gctgcggagt cttctggctg ctgtccctgc tgggtgagct ggatgggagc 28260
cctgggcccc tggggctggg aggggtgggc ctcatggcac agcaggcaca aggcagcccc 28320
gcccccttct gcaggctgca tcaaggagca gcagtttgaa caagtgggtg cgctgctcct 28380
gcaaagcatc cggctgtgcc aggacagagc cctgctgggtg aacaatgcct accggggact 28440
ggccagcctg gtgaagggtg caggtgagcc tggggacagg acgaggctgc cacctagagg 28500
tgggggcaag aatcagcccc catcagttac atctgccagg tgccacaaac caaaaaacag 28560
aagcaacaaa tcaaaaagga aaagaaatta aaaacgatct gaagtccagt catccagaaa 28620
tcaccatcaa gactttcacg cacacttgat aaactcttgt ctctgcgtta tgctaccctg 28680
tgaccctctc tctgtccata aacacatcac atctgcacag gtttcctaac atgcaggcac 28740
accgtgactg atcaaaacag ctctgcaaac agtgtctcca attccccaca acacaaaccc 28800
tgctgtttac tcagctagac aggtggggcc cagcgctgag cacagcaca cgcagctcg 28860
gcccacagca cagtccttca gagagcatcc tgggcctggc caagacacta gctgggtgcct 28920
ggcaactccg ggctcatggt cttgacctct gtactaccta atcttcccca gagtgacaac 28980
gacccttttg gctctggggg ggctgcctcc tctgttcttg catggctcctg ttcagggtcat 29040
gccagcctac tgggtccgccc aagctgatgg ggcctcctgg gtcccgtctc ttgtcctgtc 29100
ccaggccccct gtgtgagctc tgggggtccca tcccgtcctg ggcagaaggc tcttcccttt 29160
caggggaaag caggggaatga acccactccc acccatcccc cagagctggc ggccttcaag 29220
gtggtggtgc aggaggaggg cggcagtggc ctcagcctca tcaaggagac ctaccagctc 29280
cacagggacg acccgagggt ggtgggagaac gtgggcatgc tgctgggtcca cctggcttcc 29340
tatggtgaga accccttctc acctcacact ccctagagcc cagcgggtcag ggggtgccccg 29400
ctccccctat aactgacagg gaaggagcac atggaagggt ggctcaaccc cacttctcgg 29460
cccacttaaa cttccactc atttggcatc ttctgagcac caggggttgt cctggctgag 29520
ggtgacgctt ggggctccgg aactgcaagg tggctctgtg catgccaagc ccaaggggga 29580
atgtgacca ctctcactct tctggggctt ctggcaaggg gcacaggaag gactctggcc 29640
tcaggacctt cctgctccac ctgcagagga gatcctgccg gagctgggtg ccagtagtat 29700
gaaggccctg ctccaggaga tcaaggagcg cttcacctcc agcctgggtg gtgacagcag 29760
cgccttcagc aaaccaggcc tccctccagg tggaagcccc cagctggggg gcaccacgtc 29820
tgggggactg gaatag 29836

```

<210> 4  
 <211> 2553  
 <212> DNA  
 <213> Homo sapiens

<400> 4  
 gttttgtacc agctgaatcc tggggccttg ggggtgaacc tgggtggtgga ggaaatggaa 60

AM101074 Non-Prov. Utility Seqs.ST25

accaaagtca agcatgtgat aaagcagctc ttcccatgtt ggagaagctt cctgatgcgg	120
cagctggatt cctcgctgct gacacttgcg gagactaatc tggttggggg agatgtgggg	180
gtggaatgca tggatgacca ttacgccagt caggccctgg aggagctgat gccactgctg	240
aagctgcggc acgcccacat ctctgtgtac caggagctgt tcatcacgtg gaatggggag	300
atctcttctc tgtacctctg cctggtgatg gagttcaatg agctcagctt ccaggaggtc	360
attgaggata agaggaaggc aaagaaaatc attgactctg agtggatgca gaatgtgctg	420
ggccagggtg tggacgcgct ggaataacctg caccatttgg acatcatcca caggaatctc	480
aaacctcca acatcatcct catcagcagt gaccactgca aactgcagga cctgagttcc	540
aatgtgctaa tgacagacaa agccaaatgg aatattcgtg cggaggaagg gcagaggcag	600
ggccccacag acaccaaca tttgagagaa acaagtcgt ggttgtttgt ggtaccccag	660
aaaatgttgc ctctcatgga gggaaaagaa agtgtcagaa ggaaggatat gaaaatgccc	720
aggacggagg gagaccctt tcgtaagtcc tggatggccc ctgaagccct caacttctcc	780
ttcagccaga aatcagacat ctggtcctg ggtgcatca ttctggacat gaccagctgc	840
tccttcatgg atggcacaga agccatgcat ctgcggaagt ccctccgcca gagcccaggc	900
agcctgaagg ccgtcctgaa gacaatggag gagaagcaga tcccggatgt ggaaaccttc	960
aggaatcttc tgcccttgat gctccagatc gaccctcgg atcgaataac gataaaggac	1020
gtggtgcaca tcaccttctt gagaggctcc ttcaagtcct cgtgcgtctc tctgaccctg	1080
caccggcaga tgggtgcctgc gtccatcacc gacatgctgt tagaaggcaa cgtggccagc	1140
attttaggtg atgctgggga cacaaagggg gagcgtgccc tgaagctcct gtccatggcc	1200
ttggcatcct attgtttagt tccagagggg tcattattta tgcccctggc cttgctccac	1260
atgcacgacc agtggctcag ctgtgaccag gacagagtcc ctgggaagag agactttgcc	1320
tccctgggga aactagggaa gctgttgggc cccatcccaa agggctctgcc gtggcccccg	1380
gagctgggtg aggtgggtgg cacgaccatg gagctacatg acagggctct cgatgtccag	1440
ctgtgtgcct gctccctgct gctgcacctc ctgggccaag gcctgccttt tgccctgctc	1500
gtggccctgg acaagttcct gatgatcctg ccagttttcc cagctatgaa gcgaggagct	1560
ggacacgagg tcctctggag tcaccctcag ggaggatggg ttgtgtcctc tgaagagggc	1620
tgcgctgggt caccacccgg aagccaaggc tccctgcaac caagccatca cctccaccct	1680
gctgagtgtc cttcagagcc accccgagga ggagccactt cttgtcatgg tctacagcct	1740
gctagccatc accacaacc aggggcccag tgggcttccg aagccgccag ccaggactgt	1800
gggaaggaga gggccataca gagcgctcac accttcaccc acaaatcgga gtcagagtca	1860
ctgtcagagg agctgcagaa cgctgggctg ctggagcaca tcctggagca cctcaacagc	1920
tccctcaaaa gcagggacgt ctgcgccagc ggcctgggccc tgctctgggc cctcctgctg	1980
gacgaccca tcttggcact ccagcgcccc aggaaaaaga gagctccaaa ccacggaaag	2040
cccgggaaac ccaagaaccc tgccagcacc caaagtatca ttgtgaacaa ggcccccttg	2100

AM101074 Non-Prov. Utility Seqs.ST25

gagaaggtcc cggacctcat cagccagggtg ttggccacct accctgcgga tggggaaatg 2160  
gcagaagcca gctgcggagt cttctggctg ctgtccctgc tgggctgcat caaggagcag 2220  
cagtttgaac aagtgggtggc gctgctcctg caaagcatcc ggctgtgcca ggacagagcc 2280  
ctgctgggtga acaatgccta ccggggactg gccagcctgg tgaagggtgtc agagctggcg 2340  
gccttcaagg tgggtggtgca ggaggagggc ggcagtggcc tcagcctcat caaggagacc 2400  
taccagctcc acagggacga cccggagggtg gtggagaacg tgggcatgct gctgggtccac 2460  
ctggcttcct atgaggagat cctgccggag ctgggtgtcca gtagtatgaa ggccctgctc 2520  
caggagatca aggagcgctt cacctccagc ctg 2553

<210> 5  
<211> 2115  
<212> DNA  
<213> Homo sapiens

<400> 5  
gagggtggtgg ctgtgcagat gatggtggaa tgcattggtg accattacgc cagtcaggcc 60  
ctggaggagc tgatgccact gctgaagctg cggcacgccc acatctctgt gtaccaggag 120  
ctgttcatca cgtggaatgg ggagatctct tctctgtacc tctgcctggt gatggagtcc 180  
aatgagctca gcttccagga ggtcattgag gataagagga aggcaaagaa aatcattgac 240  
tctgagtgga tgcagaatgt gctggggccag gtgctggacg cgctggaata cctgcacat 300  
ttggacatca tccacaggaa tctcaaacc tccaacatca tcctcatcag cagtgaccac 360  
tgcaaactgc aggacctgag ttccaatgtg ctaatgacag acaaagccaa atggaatatt 420  
cgtgcggagg aagacccctt tcgtaagtcc tggatggccc ctgaagccct caacttctcc 480  
ttcagccaga aatcagacat ctggctccctg ggctgcatca ttctggacat gaccagctgc 540  
tccttcatgg atggcacaga agccatgcat ctgcggaagt ccctccgcca gagcccaggc 600  
agcctgaagg ccgtcctgaa gacaatggag gagaagcaga tcccggatgt ggaaaccttc 660  
aggaatcttc tgcccttgat gctccagatc gaccctcgg atcgaataac gataaaggac 720  
gtggtgcaca tcaccttctt gagaggctcc ttcaagtctt cgtgcgtctc tctgacctg 780  
caccggcaga tgggtgcctgc gtccatcacc gacatgctgt tagaaggcaa cgtggccagc 840  
atttttaggtg atgctgggga cacaagggg gagcgtgccc tgaagctcct gtccatggcc 900  
ttggcatcct attgttttagt tccagagggt tcattattta tgcccttggc cttgctccac 960  
atgcacgacc agtggctcag ctgtgaccag gacagagtcc ctgggaagag agactttgcc 1020  
tccctgggga aactagggaa gctgttgggc cccatcccaa agggctctgcc gtggcccccg 1080  
gagctgggtg aggtggtggt cacgacctg gagctacatg acagggtcct cgatgtccag 1140  
ctgtgtgcct gctccctgct gctgcacctc ctgggccaag cgctggtgca ccacccggaa 1200  
gccaaggctc cctgcaacca agccatcacc tccaccctgc tgagtgtctt tcagagccac 1260  
cccaggagg agccacttct tgtcatgggtc tacagcctgc tagccatcac cacaaccag 1320

AM101074 Non-Prov. Utility Seqs.ST25

gagtcagagt cactgtcaga ggagctgcag aacgctgggc tgctggagca catcctggag 1380  
cacctcaaca gctccctcga aagcagggac gtctgcgcca gcggcctggg cctgctctgg 1440  
gccctcctgc tggacgaccc catcttgga ctccagcgcc ccaggaaaaa gagagctcca 1500  
aaccacggaa agcccgggaa acccaagaac cctgccagca cccaaagtat cattgtgaac 1560  
aaggccccct tggagaaggt cccggacctc atcagccagg tgttgggcac ctaccctgcg 1620  
gatggggaaa tggcagaagc cagctgcgga gtcttctggc tgctgtccct gctgggctgc 1680  
atcaaggagc agcagtttga acaagtgggt gcgctgctcc tgcaaagcat ccggctgtgc 1740  
caggacagag ccctgctggt gaacaatgcc taccggggac tggccagcct ggtgaagggtg 1800  
tcagagctgg cggccttcaa ggtggtggtg caggaggagg gcggcagtgg cctcagcctc 1860  
atcaaggaga cctaccagct ccacagggac gaccggagg tggaggagaa cgtgggcatg 1920  
ctgctggtcc acctggcttc ctatgaggag atcctgccgg agctgggtgc cagtagtatg 1980  
aaggccctgc tccaggagat caaggagcgc ttcacctcca gcctgggtgag tgacagcagc 2040  
gccttcagca aaccaggcct ccctccaggt ggaagcccc agctgggggtg caccacgtct 2100  
gggggactgg aatag 2115

<210> 6  
<211> 704  
<212> PRT  
<213> Homo sapiens

<400> 6

Glu Val Val Ala Val Gln Met Met Val Glu Cys Met Asp Asp His Tyr  
1 5 10 15

Ala Ser Gln Ala Leu Glu Glu Leu Met Pro Leu Leu Lys Leu Arg His  
20 25 30

Ala His Ile Ser Val Tyr Gln Glu Leu Phe Ile Thr Trp Asn Gly Glu  
35 40 45

Ile Ser Ser Leu Tyr Leu Cys Leu Val Met Glu Phe Asn Glu Leu Ser  
50 55 60

Phe Gln Glu Val Ile Glu Asp Lys Arg Lys Ala Lys Lys Ile Ile Asp  
65 70 75 80

Ser Glu Trp Met Gln Asn Val Leu Gly Gln Val Leu Asp Ala Leu Glu  
85 90 95

Tyr Leu His His Leu Asp Ile Ile His Arg Asn Leu Lys Pro Ser Asn  
100 105 110

Ile Ile Leu Ile Ser Ser Asp His Cys Lys Leu Gln Asp Leu Ser Ser  
115 120 125

AM101074 Non-Prov. Utility Seqs.ST25

Asn Val Leu Met Thr Asp Lys Ala Lys Trp Asn Ile Arg Ala Glu Glu  
130 135 140

Asp Pro Phe Arg Lys Ser Trp Met Ala Pro Glu Ala Leu Asn Phe Ser  
145 150 155 160

Phe Ser Gln Lys Ser Asp Ile Trp Ser Leu Gly Cys Ile Ile Leu Asp  
165 170 175

Met Thr Ser Cys Ser Phe Met Asp Gly Thr Glu Ala Met His Leu Arg  
180 185 190

Lys Ser Leu Arg Gln Ser Pro Gly Ser Leu Lys Ala Val Leu Lys Thr  
195 200 205

Met Glu Glu Lys Gln Ile Pro Asp Val Glu Thr Phe Arg Asn Leu Leu  
210 215 220

Pro Leu Met Leu Gln Ile Asp Pro Ser Asp Arg Ile Thr Ile Lys Asp  
225 230 235 240

Val Val His Ile Thr Phe Leu Arg Gly Ser Phe Lys Ser Ser Cys Val  
245 250 255

Ser Leu Thr Leu His Arg Gln Met Val Pro Ala Ser Ile Thr Asp Met  
260 265 270

Leu Leu Glu Gly Asn Val Ala Ser Ile Leu Gly Asp Ala Gly Asp Thr  
275 280 285

Lys Gly Glu Arg Ala Leu Lys Leu Leu Ser Met Ala Leu Ala Ser Tyr  
290 295 300

Cys Leu Val Pro Glu Gly Ser Leu Phe Met Pro Leu Ala Leu Leu His  
305 310 315 320

Met His Asp Gln Trp Leu Ser Cys Asp Gln Asp Arg Val Pro Gly Lys  
325 330 335

Arg Asp Phe Ala Ser Leu Gly Lys Leu Gly Lys Leu Leu Gly Pro Ile  
340 345 350

Pro Lys Gly Leu Pro Trp Pro Pro Glu Leu Val Glu Val Val Val Thr  
355 360 365

Thr Met Glu Leu His Asp Arg Val Leu Asp Val Gln Leu Cys Ala Cys  
370 375 380

Ser Leu Leu Leu His Leu Leu Gly Gln Ala Leu Val His His Pro Glu  
Page 24



385 AM101074 Non-Prov. Utility Seqs.ST25 395 400  
 Ala Lys Ala Pro Cys Asn Gln Ala Ile Thr Ser Thr Leu Leu Ser Ala  
 405 410 415  
 Leu Gln Ser His Pro Glu Glu Glu Pro Leu Leu Val Met Val Tyr Ser  
 420 425 430  
 Leu Leu Ala Ile Thr Thr Thr Gln Glu Ser Glu Ser Leu Ser Glu Glu  
 435 440 445  
 Leu Gln Asn Ala Gly Leu Leu Glu His Ile Leu Glu His Leu Asn Ser  
 450 455 460  
 Ser Leu Glu Ser Arg Asp Val Cys Ala Ser Gly Leu Gly Leu Leu Trp  
 465 470 475 480  
 Ala Leu Leu Leu Asp Asp Pro Ile Leu Ala Leu Gln Arg Pro Arg Lys  
 485 490 495  
 Lys Arg Ala Pro Asn His Gly Lys Pro Gly Lys Pro Lys Asn Pro Ala  
 500 505 510  
 Ser Thr Gln Ser Ile Ile Val Asn Lys Ala Pro Leu Glu Lys Val Pro  
 515 520 525  
 Asp Leu Ile Ser Gln Val Leu Ala Thr Tyr Pro Ala Asp Gly Glu Met  
 530 535 540  
 Ala Glu Ala Ser Cys Gly Val Phe Trp Leu Leu Ser Leu Leu Gly Cys  
 545 550 555 560  
 Ile Lys Glu Gln Gln Phe Glu Gln Val Val Ala Leu Leu Leu Gln Ser  
 565 570 575  
 Ile Arg Leu Cys Gln Asp Arg Ala Leu Leu Val Asn Asn Ala Tyr Arg  
 580 585 590  
 Gly Leu Ala Ser Leu Val Lys Val Ser Glu Leu Ala Ala Phe Lys Val  
 595 600 605  
 Val Val Gln Glu Glu Gly Gly Ser Gly Leu Ser Leu Ile Lys Glu Thr  
 610 615 620  
 Tyr Gln Leu His Arg Asp Asp Pro Glu Val Val Glu Asn Val Gly Met  
 625 630 635 640  
 Leu Leu Val His Leu Ala Ser Tyr Glu Glu Ile Leu Pro Glu Leu Val  
 645 650 655

AM101074 Non-Prov. Utility Seqs.ST25  
 Ser Ser Ser Met Lys Ala Leu Leu Gln Glu Ile Lys Glu Arg Phe Thr  
 660 665 670

Ser Ser Leu Val Ser Asp Ser Ser Ala Phe Ser Lys Pro Gly Leu Pro  
 675 680 685

Pro Gly Gly Ser Pro Gln Leu Gly Cys Thr Thr Ser Gly Gly Leu Glu  
 690 695 700

<210> 7  
 <211> 21  
 <212> DNA  
 <213> Homo sapiens

<400> 7  
 aatggaatat tcgtgcggag g

21

<210> 8  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 8  
 uggaauauuc gugcggaggu u

21

<210> 9  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 9  
 uuaccuuaua agcacgccuc c

21

<210> 10  
 <211> 21  
 <212> DNA  
 <213> Homo sapiens

<400> 10  
 aatattcgtg cggaggaaga c

21

<210> 11  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 11  
 uauucgugcg gaggaagacu u

21

<210> 12  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 12  
 uuauaagcac gccuccuucu g

21

<210> 13

AM101074 Non-Prov. Utility Seqs.ST25

<211> 21  
 <212> DNA  
 <213> Homo sapiens

<400> 13 21  
 aagttcctga tgatcctgcc a

<210> 14  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 14 21  
 guuccugaug auccugccau u

<210> 15  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 15 21  
 uucaaggacu acuaggacgg u

<210> 16  
 <211> 21  
 <212> DNA  
 <213> Homo sapiens

<400> 16 21  
 catcaccttc ttgagaggct c

<210> 17  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 17 21  
 ucaccuucuu gagaggcucu u

<210> 18  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

<400> 18 21  
 uuaguggaag aacucuccga g

<210> 19  
 <211> 21  
 <212> DNA  
 <213> Homo sapiens

<400> 19 21  
 caagttcctg atgacatctgc c

<210> 20  
 <211> 21  
 <212> RNA  
 <213> Homo sapiens

## AM101074 Non-Prov. Utility Seqs.ST25

<400> 20	21
aguuccugau gauccugccu u	
<210> 21	
<211> 21	
<212> RNA	
<213> Homo sapiens	
<400> 21	21
uuucaaggac uacuaggacg g	
<210> 22	
<211> 21	
<212> DNA	
<213> Homo sapiens	
<400> 22	21
gatgaccatt acgccagtca g	
<210> 23	
<211> 21	
<212> RNA	
<213> Homo sapiens	
<400> 23	21
ugaccauuac gccagucagu u	
<210> 24	
<211> 21	
<212> RNA	
<213> Homo sapiens	
<400> 24	21
uuacugguaa ugcggucagu c	
<210> 25	
<211> 21	
<212> DNA	
<213> Homo sapiens	
<400> 25	21
gaatattcgt gcggaggaag a	
<210> 26	
<211> 21	
<212> RNA	
<213> Homo sapiens	
<400> 26	21
auauucgugc ggaggaagau u	
<210> 27	
<211> 21	
<212> RNA	
<213> Homo sapiens	
<400> 27	21
uuuauaagca cgccuccuuc u	

AM101074 Non-Prov. Utility Seqs.ST25

<210>	28	
<211>	21	
<212>	DNA	
<213>	Homo sapiens	
<400>	28	
	gaaggccgctc ctgaagacaa t	21
<210>	29	
<211>	21	
<212>	RNA	
<213>	Homo sapiens	
<400>	29	
	aggccguccu gaagacaauu u	21
<210>	30	
<211>	21	
<212>	RNA	
<213>	Homo sapiens	
<400>	30	
	uuuccggcag gacuucuguu a	21